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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/20/2000

Richard Stirling-Gallacher

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05/11/2007

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

PHU, PHUONG M

ART UNIT

PAPER NUMBER

2611

NOTIFICATION DATE

DELIVERY MODE

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ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

TH

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/692,927	STIRLING-GALLACHER, RICHARD	
	<b>Examiner</b>	<b>Art Unit</b>	
	Phuong Phu	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 March 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11, 14, 15 and 18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11, 14, 15 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on 3/12/07. Accordingly, claims 11, 14, 15 and 18 are currently pending; and claims 1-10, 12-13, 16-17 and 19-30 are canceled.

#### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 11, 14, 15 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

Claim 11 omits functional/structural cooperative interrelationships of each of elements “normalization units” (see claim 11, line 9), which are other than the previously recited “normalization unit” (see claim 11, line 7), to each other or one another and to elements “normalization unit”, “first decoding unit” and “second decoding unit”, previously recited in the claim, for making the claimed turbo decoder as a complete connective and operative device.

Claim 11 recites the limitation “decoding units” (see claim 11, line 10). It is unclear whether the limitation strictly refers to “first decoding unit” and “second decoding unit”, previously recited (see claim 11, lines 3-4), or whether the “decoding units” comprises other decoding units along with “first decoding unit” and “second decoding unit”. If the “decoding units” comprises other decoding units along with “first decoding unit” and “second decoding unit”, claim 11 omits functional/structural cooperative interrelationships of each of elements “decoding units” (see claim 11, line 10), which are other than the previously recited “first

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decoding unit” and “second decoding unit”, to each other or one another and to elements “first decoding unit” and “second decoding unit”, “normalization unit”, and “normalization units”, previously recited in the claim, for making the claimed turbo decoder as a complete connective and operative device.

Similarly, claim 15 omits functional/structural cooperative interrelationships of each of elements “normalization units” (see claim 15, line 8), which are other than the previously recited “normalization unit” (see claim 15, line 7), to each other or one another and to elements “normalization unit”, “first decoding unit” and “second decoding unit”, previously recited in the claim, for making the claimed turbo decoding method as a complete operative method, and the turbo decoding device, comprising “normalization unit”, “first decoding unit” and “second decoding unit”, “normalization units” and “decoding units” and associated with the method, as a complete connective and operative device.

Similarly, claim 15 recites the limitation “decoding units” (see claim 15, line 9). It is unclear whether the limitation strictly refers to “first decoding unit” and “second decoding unit”, previously recited (see claim 15, lines 4-5), or whether the “decoding units” comprises other decoding units along with “first decoding unit” and “second decoding unit”. If the “decoding units” comprises other decoding units along with “first decoding unit” and “second decoding unit”, claim 15 omits functional/structural cooperative interrelationships of each of elements “decoding units” (see claim 5 lines 4-5), which are other than the previously recited “first decoding unit” and “second decoding unit”, to each other or one another and to elements “first decoding unit” and “second decoding unit”, “normalization unit”, and “normalization units”, previously recited in the claim, for making the claimed turbo decoding method as a complete

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operative method, and the turbo decoding device, comprising "normalization unit", "first decoding unit" and "second decoding unit", "normalization units" and "decoding units" and associated with the method, as a complete connective and operative device.

Claims, (if any), depended on above claims, are therefore also rejected.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 11, 15 and 18 are rejected under 35 U.S.C. 102(a) as being anticipated by the prior art admitted by the applicant, (hereafter referred as the admitted prior art).

-Regarding to claim 11, see figure 3 and page 2, lines 7-14 of specification of the instant application, the admitted prior art discloses a turbo decoder operative to use a soft output Viterbi algorithm, said turbo decoder (see figure 3) comprising:

a first decoding unit (25);

a second decoding unit (30), wherein an output of the first decoding unit is connected to an input of the second decoding unit (via (25, x, 28)), and an output of the second decoding unit is connected to an input of the first decoding unit (via (+, x, 26)); and

a first normalization unit (27), wherein an output of the first normalization unit is connected to the output of the first decoding unit (via (+, x)),

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wherein a number (=2) of normalization units (27, 33) included in the turbo decoder is smaller than the number (= 4) of decoding units (“Decoder1 25”, “Decoder2 30”, “Deinterleaver 26”, “Deinterleaver 31”).

(Note that in the admitted prior art, “Deinterleaver 26”, “Deinterleaver 31” can be considered as decoding units since it is well-recognized in the art that interleavers encodes signals and associated deinterleavers decodes signals. For this clarity, e.g., see Yi (6,094,427), (601) of figure 6, col. 19, lines 1-4, in which an interleaver “601” is considered as an encoder for encoding signals via a permutation algorithm and therefore called “encoder interleaver”, and see Ito et al (7,138,931), figure 3, in which an interleaver “207e” is called “interleave encoder”.)

-Regarding to claim 15, as similarly applied to claim 11 set forth above and herein incorporated, the admitted prior art discloses a turbo method operative to use a soft output Viterbi algorithm, said turbo decoding method (see figure 3) comprising:

procedure (25, 30) of providing a first decoding unit (25) and a second decoding unit (30), wherein an output of the first decoding unit is connected to an input of the second decoding unit (via (25, x, 28)) and an output of the second decoding unit is connected to an input of the first decoding unit (via (+, x, 26));

procedure (27) of normalizing data obtained from the first decoding unit by connecting the output of a first normalization unit to the output of the first decoding unit (via (+, x)),

wherein a number (=2) of normalization units (27, 33) included in the turbo decoder is smaller than the number (= 4) of decoding units (“Decoder1 25”, “Decoder2 30”, “Deinterleaver 26”, “Deinterleaver 31”).

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-Regarding to claim 18, the admitted prior art discloses that the data obtained from the use of the first decoding unit is normalized with normalization factor (C1), (see figure 3), variable during operation (see specification, page 2, lines 16-37). The admitted prior art further teaches that data (outputted from (30) (see figure 3)) obtained from the use of the second decoding unit (30) is directly inputted to device (31); or in another word, it can be said that the data (outputted from (30) (see figure 3)) obtained from the use of the second decoding unit (30) is normalized with a time constant normalization factor (having a value of 1) before being inputted to device (31).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Doetsch et al (6,571,366), prior art of record.

-Regarding to claim 14, the admitted prior art does not teach whether the turbo decoder is comprised in a mobile communication device, as claimed.

Doetsch et al teaches that turbo coder/decoder can be applied in Mobile communication systems/devices for correcting error due channel distortion during transmission (see col. 2, lines 7-10 on page 2 of front pages, col. 2, lines 6-37).

Therefore, for an application, it would have been obvious for one skills in the art to utilize the admitted prior art turbo decoder in a mobile communication device, as taught by

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Doetsch et al, in such a way that a turbo coder would be used to code signals to be transmitted and the mobile communication device would use the turbo decoder for decoding the transmitted signals, which are received by the mobile communication device, for correcting error occurred in the transmitted signals due channel distortion during transmission so that the transmitted signals would be recovered in the mobile communication device.

***Response to Arguments***

8. Applicant's arguments filed on 03/12/07, with respect to claims 11, 14, 15 and 18, have been fully considered but they are not persuasive. The claims, after being amended, are deemed not overcome the admitted prior art and not allowable because of reasons set forth above in this Office Action.

***Conclusion***

9. References 6094427 and 7138931 are additionally cited because they are pertinent to the claimed method and associated system.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,



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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Phu whose telephone number is 571-272-3009. The examiner can normally be reached on M-F (8:00 AM - 4:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*Phuong Phu*  
Phuong Phu  
05/03/07

**PHUONG PHU**  
**PRIMARY EXAMINER**

Phuong Phu  
Primary Examiner  
Art Unit 2611